Dominion Resources Services, Inc.
5000 Dominion Boulevard, Glen Allen, VA 23060

Dominion

September 8, 2004

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555-0001

Serial No. 04-386
NL&OS/SLW R1
Docket Nos. 50-280, 281
50-338, 339
50-336, 423
License Nos. DPR-32, 37
NPF-4, 7
DPR-65
NPF-49

VIRGINIA ELECTRIC AND POWER COMPANY
DOMINION NUCLEAR CONNECTICUT, INC.
SURRY POWER STATION UNITS 1 AND 2
NORTH ANNA POWER STATION UNITS 1 AND 2
MILLSTONE POWER STATION UNITS 2 AND 3
APPLICATION FOR TECHNICAL SPECIFICATION IMPROVEMENT TO ELIMINATE REQUIREMENTS FOR HYDROGEN RECOMBINERS AND HYDROGEN MONITORS USING THE CONSOLIDATED LINE ITEM IMPROVEMENT PROCESS

Pursuant to 10 CFR 50.90, Virginia Electric and Power Company (Dominion) and Dominion Nuclear Connecticut, Inc. (DNC) hereby request amendments to the Technical Specifications (TS) for Surry Power Station Units 1 and 2, North Anna Power Station Units 1 and 2, and Millstone Power Station Units 2 and 3. The proposed amendments will delete the TS requirements related to hydrogen recombiners (North Anna and Millstone only), and hydrogen monitors. The proposed TS changes support implementation of the revisions to 10 CFR 50.44, "Standards for Combustible Gas Control System in Light-Water-Cooled Power Reactors," that became effective on October 16, 2003. The changes are consistent with Revision 1 of NRC-approved Industry/Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF-447, "Elimination of Hydrogen Recombiners and Change to Hydrogen and Oxygen Monitors." The availability of this TS improvement was announced in the *Federal Register* on September 25, 2003 as part of the consolidated line item improvement process (CLIIP).

The proposed TS changes are provided in Attachment 1 for North Anna Power Station Units 1 and 2, Attachment 2 for Surry Power Station Units 1 and 2, Attachment 3 for Millstone Power Station Unit 2, and Attachment 4 for Millstone Power Station Unit 3. Within each proposed change, Attachment A provides a description of the proposed change, the requested confirmation of applicability, and plant-specific verifications and commitments. Attachment B provides the existing TS pages marked-up to show the proposed change, and Attachment C provides revised, clean TS pages. Implementation of TSTF-447 also involves various changes to the TS Bases. The TS Bases changes

A001

will be submitted with a future update in accordance with North Anna Units 1 and 2 TS 5.5.13, Millstone Unit 2 TS 6.23, and Millstone Unit 3 TS 6.18, "Technical Specifications (TS) Bases Control Program." The Surry TS bases will be updated in accordance with Dominion's Technical Specifications change management procedure. The proposed changes to the TS Bases are provided for information only in Attachment D.

Since the purpose of the CLIIP is to streamline the license amendment review process involving TSTF changes applicable to multiple plants, and at the same time facilitate efficient NRC staff review of licensee submittals, Dominion and DNC request that the NRC review of the attached license amendment requests be performed by the same staff person. Approval of the proposed license amendments is requested by June 24, 2005, with the amendments being implemented within 60 days of approval.

In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated State Officials.

If you should have any questions regarding this submittal, please contact Dave Sommers at (804) 273-2823.

Sincerely,

Leslie N. Hartz
Vice President - Nuclear Engineering
Virginia Electric and Power Company and
Dominion Nuclear Connecticut, Inc.

Attachments:

1. Amendment request for North Anna Power Station Units 1 and 2
2. Amendment request for Surry Power Station Units 1 and 2
3. Amendment request for Millstone Power Station Unit 2
4. Amendment request for Millstone Power Station Unit 3.

cc: U. S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406-1415

US Nuclear Regulatory Commission
Region II
Sam Nunn Atlanta Federal Center
61 Forsyth Street, S.W., Suite 23T85
Atlanta, Georgia 30303

Mr. S. R. Monarque
Senior Project Manager
U. S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Mail Stop 8H12
Rockville, MD 20852-2738

Mr. V. Nerses
NRC Senior Project Manager
U. S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Mail Stop 8C2
Rockville, MD 20852-2738

Mr. N. P. Garrett
NRC Senior Resident Inspector
Surry Power Station

Mr. M. T. Widmann
NRC Senior Resident Inspector
North Anna Power Station

Mr. S. M. Schneider
NRC Senior Resident Inspector
Millstone Power Station

Commissioner
Bureau of Radiological Health
1500 East Main Street
Suite 240
Richmond, VA 23218

Director
Bureau of Air Management
Monitoring and Radiation Division
Department of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

SN: 04-386
Docket Nos.: 50-280/281/338/339/336/423
Subject: Application for Tech Spec Improvement to Eliminate Requirements for Hydrogen Recombiners and Hydrogen Monitors Using the CLIIP

COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Leslie N. Hartz, who is Vice President - Nuclear Engineering, of Virginia Electric and Power Company and Dominion Nuclear Connecticut, Inc. She has affirmed before me that she is duly authorized to execute and file the foregoing document in behalf of those companies, and that the statements in the document are true to the best of her knowledge and belief.

Acknowledged before me this 8TH day of September, 2004.

My Commission Expires: May 31, 2006.

Vicki L. Hull
Notary Public

(SEAL)

NORTH ANNA POWER STATION
UNITS 1 AND 2

Technical Specifications Change Request

Hydrogen Recombiners and Containment Hydrogen Analyzers

Attachment 1-A	Description and Assessment
Attachment 1-B	Mark-Up of Technical Specifications
Attachment 1-C	Proposed Technical Specifications
Attachment 1-D	Mark-Up and Proposed Bases

Attachment 1-A

Description and Assessment

Dominion
North Anna Power Station Units 1 and 2

DESCRIPTION AND ASSESSMENT

1.0 INTRODUCTION

The proposed License amendment deletes Technical Specification (TS) 3.6.9, "Hydrogen Recombiners," and references to the containment hydrogen analyzers in TS 3.3.3, "Post Accident Monitoring (PAM) Instrumentation." The proposed TS changes support implementation of the revisions to 10 CFR 50.44, "Standards for Combustible Gas Control System in Light-Water-Cooled Power Reactors," that became effective on October 16, 2003. The deletion of the requirements for the hydrogen recombiner and references to containment hydrogen analyzers resulted in formatting changes to other TS, which were otherwise unaffected by this proposed amendment.

The changes are consistent with Revision 1 of NRC-approved Industry/Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF-447, "Elimination of Hydrogen Recombiners and Change to Hydrogen and Oxygen Monitors." The availability of this TS improvement was announced in the *Federal Register* on September 25, 2003 as part of the consolidated line item improvement process (CLIIP).

2.0 DESCRIPTION OF PROPOSED AMENDMENT

Consistent with the NRC-approved Revision 1 of TSTF-447, the proposed TS changes include:

TS 3.3.3	Surveillance Requirement 3.3.3.2	Deleted
Table 3.3.3-1	Item 12, Containment Hydrogen Analyzers	Deleted
TS 3.6.9	Hydrogen Recombiners	Deleted

Other TS changes included in this application are limited to formatting changes that resulted directly from the deletion of the above requirements related to hydrogen recombiners and containment hydrogen analyzers.

As described in NRC-approved Revision 1 of TSTF-447, the changes to TS requirements results in changes to various TS Bases sections. The associated Bases changes are attached for your information. The TS Bases changes will be submitted with a future update in accordance with TS 5.5.11, "Technical Specifications (TS) Bases Control Program."

3.0 BACKGROUND

The background for this application is adequately addressed by the NRC Notice of Availability published on September 25, 2003 (68 FR 55416), TSTF-447, the documentation associated with the 10 CFR 50.44 rulemaking, and other related documents.

4.0 REGULATORY REQUIREMENTS AND GUIDANCE

The applicable regulatory requirements and guidance associated with this application are adequately addressed by the NRC Notice of Availability published on September 25, 2003 (68 FR 55416), TSTF-447, the documentation associated with the 10 CFR 50.44 rulemaking, and other related documents.

5.0 TECHNICAL ANALYSIS

Dominion has reviewed the Safety Evaluation (SE) published September 25, 2003 (68 FR 55416) as part of the CLIIP Notice of Availability. This verification included a review of the NRC staff's SE, as well as the supporting information provided to support TSTF-447. Dominion has concluded that the justifications presented in the TSTF proposal and the SE prepared by the NRC staff are applicable to North Anna Power Station, Units 1 and 2 and justify this amendment for the incorporation of the changes to the North Anna TS.

6.0 REGULATORY ANALYSIS

A description of this proposed change and its relationship to applicable regulatory requirements and guidance was provided in the NRC Notice of Availability published on September 25, 2003 (68 FR 55416), TSTF-447, the documentation associated with the 10 CFR 50.44 rulemaking, and other related documents.

6.1 Verification and Commitments

As discussed in the model SE published in the *Federal Register* on September 25, 2003 (68 FR 55416) for this TS improvement, Dominion is making the following verifications and regulatory commitments:

1. Dominion has verified that a containment hydrogen analyzer system capable of diagnosing beyond design-basis accidents is installed at North Anna Units 1 and 2 and is making a regulatory commitment to maintain that capability. The containment hydrogen analyzer will be included in the North Anna Units 1 and 2 Technical Requirements Manual. This regulatory commitment will be implemented with the proposed amendment implementation.

2. Dominion does not intend to relocate the current TS requirements for the hydrogen recombiners into another Licensee controlled document. Changes to the North Anna Power Station Units 1 and 2 UFSAR sections describing the use of hydrogen recombiners for combustible gas control will be made under the 10 CFR 50.59 process.

3. North Anna Units 1 and 2 do not have inerted containments.

4. The commitments made by this letter supersede the previous commitments made in support of addressing NUREG-0737 requirements associated with Containment Hydrogen Analyzers and Hydrogen Recombiners.

7.0 NO SIGNIFICANT HAZARDS CONSIDERATION

Dominion has reviewed the proposed no significant hazards consideration determination published on September 25, 2003 (68 FR 55416) as part of the CLIIP. Dominion has concluded that the proposed determination presented in the notice is applicable to North Anna Units 1 and 2 and the determination is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

8.0 ENVIRONMENTAL EVALUATION

Dominion has reviewed the environmental evaluation included in the model SE published on September 25, 2003 (68 FR 55416) as part of the CLIIP. Dominion has concluded that the staff's findings presented in that evaluation are applicable to North Anna Units 1 and 2 and the evaluation is hereby incorporated by reference for this application.

9.0 PRECEDENT

This application is being made in accordance with the CLIIP. Dominion is proposing TS changes consistent with TSTF-447 and the NRC staff's model SE published on September 25, 2003 (68 FR 55416). North Anna's TS are worded slightly different than the TSTF Westinghouse Owners Group (WOG) example but the information intended to be deleted is the same.

10.0 REFERENCES

Federal Register Notice: Notice of Availability of Model Application Concerning Technical Specification Improvement To Eliminate Hydrogen Recombiner Requirement, and Relax the Hydrogen and Oxygen Monitor Requirements for Light Water Reactors Using the Consolidated Line Item Improvement Process, published September 25, 2003 (68 FR 55416).

Attachment 1-B

Mark-up of Technical Specifications

Dominion
North Anna Power Station Units 1 and 2

SURVEILLANCE REQUIREMENTS

NOTE

SR 3.3.3.1 and SR 3.3.3.3 apply to each PAM instrumentation Function in Table 3.3.3-1 except SR 3.3.3.3 does not apply to Items 10. ~~and 12a. SR 3.3.3.2 applies only to Item 12a.~~ SR 3.3.3.4 applies only to Item 10.

	SURVEILLANCE	FREQUENCY
SR 3.3.3.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
SR 3.3.3.2	~~Perform CHANNEL CALIBRATION.~~ (Not Used)	~~92 days~~
SR 3.3.3.3	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION.	18 months
SR 3.3.3.4	Perform TADOT.	18 months

Table 3.3.3-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

FUNCTION	REQUIRED CHANNELS
1. Power Range Neutron Flux	2
2. Source Range Neutron Flux	2
3. Reactor Coolant System (RCS) Hot Leg Temperature (Wide Range)	2
4. RCS Cold Leg Temperature (Wide Range)	2
5. RCS Pressure (Wide Range)	2
6. Inadequate Core Cooling Monitoring (ICCM) System	
6.a. Reactor Vessel Level Instrumentation System (RVLIS)	2
6.b. RCS Subcooling Margin Monitor	2
6.c.1 Core Exit Temperature–Quadrant 1	2[c]
6.c.2 Core Exit Temperature–Quadrant 2	2[c]
6.c.3 Core Exit Temperature–Quadrant 3	2[c]
6.c.4 Core Exit Temperature–Quadrant 4	2[c]
7. Containment Sump Water Level (Wide Range)	2
8. Containment Pressure	2
9. Containment Pressure (Wide Range)	2
10. Penetration Flow Path Containment Isolation Valve Position	2 per penetration flow path[a][b]
11. Containment Area Radiation (High Range)	2
12. ~~Containment Hydrogen Analyzers~~ Deleted	~~2~~
13. Pressurizer Level	2
14. Steam Generator (SG) Water Level (Wide Range)	2
15. SG Water Level (Narrow Range)	2 per SG
16. Emergency Condensate Storage Tank Level	2
17. SG Pressure	2 per SG
18. High Head Safety Injection Flow	2

(a) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(c) A channel consists of two core exit thermocouples (CETs).

3.6 CONTAINMENT SYSTEMS

3.6.9 Hydrogen Recombiners

LCO 3.6.9 Two hydrogen recombiners shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One hydrogen recombiner inoperable.	A.1 Restore hydrogen recombiner to OPERABLE status.	30 days
B. Two hydrogen recombiners inoperable.	B.1 Verify by administrative means that the hydrogen control function is maintained. AND B.2 Restore one hydrogen recombiner to OPERABLE status.	1 hour AND Once per 12 hours thereafter 7 days
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.9.1	Perform a system functional test for each hydrogen recombiner	18 months

delete

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.6.9.2	Visually examine each hydrogen recombiner enclosure and verify there is no evidence of abnormal conditions.	18 months
SR 3.6.9.3	Perform a resistance to ground test for each heater phase.	18 months

delete

Attachment 1-C

Proposed Technical Specifications

Dominion
North Anna Power Station Units 1 and 2

SURVEILLANCE REQUIREMENTS

NOTE

SR 3.3.3.1 and SR 3.3.3.3 apply to each PAM instrumentation Function in Table 3.3.3-1 except SR 3.3.3.3 does not apply to Item 10. SR 3.3.3.4 applies only to Item 10.

	SURVEILLANCE	FREQUENCY
SR 3.3.3.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
SR 3.3.3.2	Not Used	
SR 3.3.3.3	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION.	18 months
SR 3.3.3.4	Perform TADOT.	18 months

Table 3.3.3-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

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1. Power Range Neutron Flux	2
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3. Reactor Coolant System (RCS) Hot Leg Temperature (Wide Range)	2
4. RCS Cold Leg Temperature (Wide Range)	2
5. RCS Pressure (Wide Range)	2
6. Inadequate Core Cooling Monitoring (ICCM) System	
6.a. Reactor Vessel Level Instrumentation System (RVLIS)	2
6.b. RCS Subcooling Margin Monitor	2
6.c.1 Core Exit Temperature–Quadrant 1	2[c]
6.c.2 Core Exit Temperature–Quadrant 2	2[c]
6.c.3 Core Exit Temperature–Quadrant 3	2[c]
6.c.4 Core Exit Temperature–Quadrant 4	2[c]
7. Containment Sump Water Level (Wide Range)	2
8. Containment Pressure	2
9. Containment Pressure (Wide Range)	2
10. Penetration Flow Path Containment Isolation Valve Position	2 per penetration flow path[a][b]
11. Containment Area Radiation (High Range)	2
12. Deleted	
13. Pressurizer Level	2
14. Steam Generator (SG) Water Level (Wide Range)	2
15. SG Water Level (Narrow Range)	2 per SG
16. Emergency Condensate Storage Tank Level	2
17. SG Pressure	2 per SG
18. High Head Safety Injection Flow	2

(a) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(c) A channel consists of two core exit thermocouples (CETs).

Attachment 1-D

Mark-Up and Proposed Bases
(For Information Only)

Dominion
North Anna Power Station Units 1 and 2

BASES

LCO (continued)

11. Containment Area Radiation (High Range)

Containment Area Radiation is provided to monitor for the potential of significant radiation releases and to provide release assessment for use by operators in determining the need to invoke site emergency plans. Containment radiation level is used to determine if adverse containment conditions exist.

12. ~~Containment Hydrogen Analyzers~~

~~Containment hydrogen analyzers are provided to detect high hydrogen concentration conditions that represent a potential for containment breach from a hydrogen explosion. This variable is also important in verifying the adequacy of mitigating actions. The containment hydrogen analyzers are shared between units.~~

Deleted

delete

13. Pressurizer Level

Pressurizer Level is used to determine whether to terminate SI, if still in progress, or to reinitiate SI if it has been stopped. Knowledge of pressurizer water level is also used to verify the unit conditions necessary to establish natural circulation in the RCS and to verify that the unit is maintained in a safe shutdown condition.

14, 15. Steam Generator Water Level (Wide and Narrow Ranges)

SG Water Level is provided to monitor operation of decay heat removal via the SGs. Both wide and narrow ranges are Category I indications of SG level. The wide range level covers a span of +7 to -41 feet from nominal full load water level. The narrow range instrument covers from +7 to -5 feet of nominal full load water level.

The level signals are inputs to the unit computer, control room indicators, and the Auxiliary Feedwater System.

SG Water Level is used to:

- identify the affected SG following a tube rupture;
- verify that the intact SGs are an adequate heat sink for the reactor;

(continued)

BASES

ACTIONS (continued)

C.1

Condition C applies when one or more Functions have two inoperable required channels (i.e., two channels inoperable in the same Function). Required Action C.1 requires restoring one channel in the Function(s) to OPERABLE status within 7 days. The Completion Time of 7 days is based on the relatively low probability of an event requiring PAM instrument operation and the availability of alternate means to obtain the required information. Continuous operation with two required channels inoperable in a Function is not acceptable because the alternate indications may not fully meet all performance qualification requirements applied to the PAM instrumentation. Therefore, requiring restoration of one inoperable channel of the Function limits the risk that the PAM Function will be in a degraded condition should an accident occur.

D.1 and D.2

If the Required Action and associated Completion Time of Condition D is not met the unit must be brought to a MODE where the requirements of this LCO do not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and MODE 4 within 12 hours.

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that SR 3.3.3.1 and SR 3.3.3.3 apply to each PAM instrumentation Function in Table 3.3.3-1 with the exception that SR 3.3.3.3 is not required to be performed on ~~the containment hydrogen analyzers or the~~ containment isolation valve position indication. ~~SR 3.3.3.2 is required to be performed on the containment hydrogen analyzers.~~ SR 3.3.3.4 is required for the containment isolation valve position indication.

SR 3.3.3.1

Performance of the CHANNEL CHECK once every 31 days ensures that a gross instrumentation failure has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.3.1 (continued)

channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION. The high radiation instrumentation should be compared to similar unit instruments located throughout the unit.

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including isolation, indication, and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. If the channels are within the criteria, it is an indication that the channels are OPERABLE.

As specified in the SR, a CHANNEL CHECK is only required for those channels that are normally energized.

The Frequency of 31 days is based on operating experience that demonstrates that channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.

SR 3.3.3.2

Not Used

~~A CHANNEL CALIBRATION is performed on the containment hydrogen analyzers every 92 days and uses a gas solution containing a one volume percent (± 0.25%) of hydrogen and a sample of four volume percent (± 0.25%) of hydrogen with the balance of each gas sample being nitrogen. The containment hydrogen analyzer heat trace system is verified OPERABLE as a part of this surveillance.~~

delete

SR 3.3.3.3

A CHANNEL CALIBRATION is performed every 18 months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to measured

(continued)

B 3.6 CONTAINMENT SYSTEMS

B 3.6.9 Hydrogen Recombiners

BASES

BACKGROUND

The function of the hydrogen recombiners is to eliminate the potential breach of containment due to a hydrogen oxygen reaction.

Per 10 CFR 50.44, "Standards for Combustible Gas Control Systems in Light-Water-Cooled Reactors" (Ref. 1), and UFSAR, Chapter 3, "Containment Atmosphere Cleanup" (Ref. 2), hydrogen recombiners are required to reduce the hydrogen concentration in the containment following a loss of coolant accident (LOCA). The recombiners accomplish this by recombining hydrogen and oxygen to form water vapor. The vapor is returned to containment, thus eliminating any discharge to the environment. The hydrogen recombiners are manually initiated since flammable limits would not be reached until several days after a Design Basis Accident (DBA).

Two 100% capacity independent hydrogen recombiner systems are provided. The two systems are shared with the other unit. Each system consists of controls located in the recombiner vault, a power supply and a recombiner. Recombination is accomplished by heating a hydrogen air mixture to greater than or equal to 1100°F. The resulting water vapor and discharge gases are cooled prior to discharge from the recombiner. A single recombiner is capable of maintaining the hydrogen concentration in containment below the 4.0 volume percent (v/o) flammability limit. Two recombiners are provided to meet the requirement for redundancy and independence. Each recombiner is powered from a separate Emergency Diesel Generator bus, is capable of being powered from any Emergency Diesel Generator bus, and is provided with a separate power panel and control panel.

APPLICABLE SAFETY ANALYSES

The hydrogen recombiners provide for the capability of controlling the bulk hydrogen concentration in containment to less than the lower flammable concentration of 4.0 v/o following a DBA. This control would prevent a containment wide hydrogen burn, thus ensuring the pressure and temperature assumed in the analyses are not exceeded. The

(continued)

delete

BASES

APPLICABLE SAFETY ANALYSES (continued)

limiting DBA relative to hydrogen generation is a LOCA. Hydrogen may accumulate in containment following a LOCA as a result of:

a. A metal steam reaction between the zirconium fuel rod cladding and the reactor coolant;

b. Radiolytic decomposition of water in the Reactor Coolant System (RCS) and the containment sump;

c. Hydrogen in the RCS at the time of the LOCA (i.e., hydrogen dissolved in the reactor coolant and hydrogen gas in the pressurizer vapor space); or

d. Corrosion of metals exposed to containment spray and Emergency Core Cooling System solutions.

To evaluate the potential for hydrogen accumulation in containment following a LOCA, the hydrogen generation as a function of time following the initiation of the accident is calculated. Conservative assumptions recommended by Reference 3 are used to maximize the amount of hydrogen calculated.

Based on the conservative assumptions used to calculate the hydrogen concentration versus time after a LOCA, the hydrogen concentration in the containment would reach 3.5 v/o about 5 days after the LOCA and 4.0 v/o about 1 day later if no recombiner was functioning. Initiating the hydrogen recombiners within 24 hours after a LOCA will maintain the hydrogen concentration in the primary containment below flammability limits.

The hydrogen recombiners are designed such that, with the conservatively calculated hydrogen generation rates discussed above, a single recombiner, placed into service within 24 hours of the LOCA, is capable of limiting the peak hydrogen concentration in containment to less than 4.0 v/o (Ref. 4). The containment atmosphere cleanup system containment purge blowers are similarly designed such that one of two redundant trains is an adequate backup to the redundant hydrogen recombiners.

The hydrogen recombiners satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

delete

BASES

LCO

Two hydrogen recombiners must be OPERABLE. This ensures operation of at least one hydrogen recombiner in the event of a worst case single active failure.

Operation with at least one hydrogen recombiner ensures that the post LOCA hydrogen concentration can be prevented from exceeding the flammability limit.

APPLICABILITY

In MODES 1 and 2, two hydrogen recombiners are required to control the hydrogen concentration within containment below its flammability limit of 4.0 v/o following a LOCA, assuming a worst case single failure.

In MODES 3 and 4, both the hydrogen production rate and the total hydrogen produced after a LOCA would be less than that calculated for the DBA LOCA. Also, because of the limited time in these MODES, the probability of an accident requiring the hydrogen recombiners is low. Therefore, the hydrogen recombiners are not required in MODE 3 or 4.

In MODES 5 and 6, the probability and consequences of a LOCA are low, due to the pressure and temperature limitations in these MODES. Therefore, hydrogen recombiners are not required in these MODES.

ACTIONS

A.1

With one containment hydrogen recombiner inoperable, the inoperable recombiner must be restored to OPERABLE status within 30 days. In this condition, the remaining OPERABLE hydrogen recombiner is adequate to perform the hydrogen control function. However, the overall reliability is reduced because a single failure in the OPERABLE recombiner could result in reduced hydrogen control capability. The 30 day Completion Time is based on the availability of the other hydrogen recombiner, the small probability of a LOCA occurring (that would generate an amount of hydrogen that exceeds the flammability limit), and the amount of time available after a LOCA (should one occur) for operator action to prevent hydrogen accumulation from exceeding the flammability limit.

delete

BASES

ACTIONS (continued)

B.1 and B.2

With two hydrogen recombiners inoperable, the ability to perform the hydrogen control function via alternate capabilities must be verified by administrative means within 1 hour. The alternate hydrogen control capabilities are provided by the containment atmosphere cleanup system containment purge blowers. The 1 hour Completion Time allows a reasonable period of time to verify that a loss of hydrogen control function does not exist. In addition, the alternate hydrogen control system capability must be verified once per 12 hours thereafter to ensure its continued availability. Both the initial verification and all subsequent verifications may be performed as an administrative check by examining logs or other information to determine the availability of the alternate hydrogen control system. It does not mean to perform the Surveillances needed to demonstrate OPERABILITY of the alternate hydrogen control system. If the ability to perform the hydrogen control function is maintained, continued operation is permitted with two hydrogen recombiners inoperable for up to 7 days. Seven days is a reasonable time to allow two hydrogen recombiners to be inoperable because the hydrogen control function is maintained and because of the low probability of the occurrence of a LOCA that would generate hydrogen in the amounts capable of exceeding the flammability limit.

C.1

If the inoperable hydrogen recombiner(s) cannot be restored to OPERABLE status within the required Completion Time, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.9.1

Performance of a system functional test for each hydrogen recombiner ensures the recombiners are operational and can attain and sustain the temperature necessary for hydrogen recombination. In particular, this SR verifies that the minimum heater sheath temperature increases to ≥ 700°F in ≤ 90 minutes, and is maintained for at least 2 hours, and

(continued)

delete

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.9.1 (continued)

that each hydrogen recombiner purge blower operates for at least 15 minutes. Then, using containment atmosphere air at a flow rate of ≥ 50 scfm, the SR verifies that the heater temperature increases to ≥ 1100°F within 5 hours and is maintained for at least 4 hours.

Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

SR 3.6.9.2

This SR ensures there are no physical problems that could affect recombiner operation. Credible failures include fan failure, loss of power, blockage of the internal flow, missile impact, etc.

A visual inspection is sufficient to determine abnormal conditions that could cause such failures (i.e. loose wiring or structural connections, deposits of foreign materials, etc.). The 18 month Frequency for this SR was developed considering the incidence of hydrogen recombiners failing the SR in the past is low.

SR 3.6.9.3

This SR requires performance of a resistance to ground test for each heater phase to ensure that there are no detectable grounds in any heater phase. This is accomplished by verifying that the resistance to ground for any heater phase is ≥ 10,000 ohms after performance of SR 3.6.9.1.

The 18 month Frequency for this Surveillance was developed considering the incidence of hydrogen recombiners failing the SR in the past is low.

REFERENCES

1. 10 CFR 50.44.

2. UFSAR, Section 3.1.37.

3. Regulatory Guide 1.7, dated March 10, 1971.

4. UFSAR, Section 6.2.5.

delete

BASES

LCO (continued)

11. Containment Area Radiation (High Range)

Containment Area Radiation is provided to monitor for the potential of significant radiation releases and to provide release assessment for use by operators in determining the need to invoke site emergency plans. Containment radiation level is used to determine if adverse containment conditions exist.

12. Deleted

13. Pressurizer Level

Pressurizer Level is used to determine whether to terminate SI, if still in progress, or to reinitiate SI if it has been stopped. Knowledge of pressurizer water level is also used to verify the unit conditions necessary to establish natural circulation in the RCS and to verify that the unit is maintained in a safe shutdown condition.

14, 15. Steam Generator Water Level (Wide and Narrow Ranges)

SG Water Level is provided to monitor operation of decay heat removal via the SGs. Both wide and narrow ranges are Category I indications of SG level. The wide range level covers a span of +7 to -41 feet from nominal full load water level. The narrow range instrument covers from +7 to -5 feet of nominal full load water level.

The level signals are inputs to the unit computer, control room indicators, and the Auxiliary Feedwater System.

SG Water Level is used to:

- identify the affected SG following a tube rupture;
- verify that the intact SGs are an adequate heat sink for the reactor;
- determine the nature of the accident in progress (e.g., verify a SGTR); and
- verify unit conditions for termination of SI.

BASES

LCO

14, 15. Steam Generator Water Level (Wide and Narrow Ranges) (continued)

Operator action is based on the control room indication of SG level. The RCS response during a design basis small break LOCA depends on the break size. For a certain range of break sizes, a secondary heat sink is necessary to remove decay heat. Narrow range level is a Type A variable because the operator must manually raise and control SG level.

16. Emergency Condensate Storage Tank (ECST) Level

ECST Level is provided to ensure water supply for auxiliary feedwater (AFW). The ECST provides the ensured safety grade water supply for the AFW System. Inventory is monitored by a 0% to 100% level indication and ECST Level is displayed on a control room indicator.

The DBAs that require AFW are the loss of offsite electric power, loss of normal feedwater, SGTR, steam line break (SLB), and small break LOCA.

The ECST is the initial source of water for the AFW System. However, as the ECST is depleted, manual operator action is necessary to replenish the ECST.

17. Steam Generator Pressure

SG pressure is a Category I variable and provides an indication of the integrity of a steam generator. This indication can provide important information in the event of a faulted or ruptured steam generator.

18. High Head Safety Injection (HHSI) Flow

Total HHSI flow to the RCS cold legs is a Type A variable and provides an indication of the total borated water supplied to the RCS. For the small break LOCA, HHSI flow may be the only source of borated water that is injected into the RCS. Total HHSI flow is a Type A variable because it provides an indication to the operator for the RCP trip criteria.

BASES

ACTIONS (continued)

C.1

Condition C applies when one or more Functions have two inoperable required channels (i.e., two channels inoperable in the same Function). Required Action C.1 requires restoring one channel in the Function(s) to OPERABLE status within 7 days. The Completion Time of 7 days is based on the relatively low probability of an event requiring PAM instrument operation and the availability of alternate means to obtain the required information. Continuous operation with two required channels inoperable in a Function is not acceptable because the alternate indications may not fully meet all performance qualification requirements applied to the PAM instrumentation. Therefore, requiring restoration of one inoperable channel of the Function limits the risk that the PAM Function will be in a degraded condition should an accident occur.

D.1 and D.2

If the Required Action and associated Completion Time of Condition D is not met the unit must be brought to a MODE where the requirements of this LCO do not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and MODE 4 within 12 hours.

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that SR 3.3.3.1 and SR 3.3.3.3 apply to each PAM instrumentation Function in Table 3.3.3-1 with the exception that SR 3.3.3.3 is not required to be performed on containment isolation valve position indication. SR 3.3.3.4 is required for the containment isolation valve position indication.

SR 3.3.3.1

Performance of the CHANNEL CHECK once every 31 days ensures that a gross instrumentation failure has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.3.1 (continued)

approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION. The high radiation instrumentation should be compared to similar unit instruments located throughout the unit.

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including isolation, indication, and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. If the channels are within the criteria, it is an indication that the channels are OPERABLE.

As specified in the SR, a CHANNEL CHECK is only required for those channels that are normally energized.

The Frequency of 31 days is based on operating experience that demonstrates that channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.

SR 3.3.3.2

Not Used

SR 3.3.3.3

A CHANNEL CALIBRATION is performed every 18 months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to measured parameter with the necessary range and accuracy. This SR is modified by a Note that excludes neutron detectors. Whenever a sensing element is replaced, the next required CHANNEL CALIBRATION of the CET sensors is accomplished by an inplace cross calibration that compares the other sensing elements with the recently installed sensing element. The Frequency is based on operating experience and consistency with the typical industry refueling cycle.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.3.4

SR 3.3.3.4 is the performance of a TADOT of containment isolation valve position indication. This TADOT is performed every 18 months. The test shall independently verify the OPERABILITY of containment isolation valve position indication against the actual position of the valves.

The Frequency is based on the known reliability of the Functions, and has been shown to be acceptable through operating experience.

REFERENCES

1. Technical Report PE-0013.

2. Regulatory Guide 1.97, May 1983.

3. NUREG-0737, Supplement 1, "TMI Action Items."

SURRY POWER STATION
UNITS 1 AND 2

Technical Specifications Change Request

Containment Hydrogen Analyzers

Attachment 2-A	**Description and Assessment**
Attachment 2-B	**Mark-Up of Technical Specifications**
Attachment 2-C	**Proposed Technical Specifications**
Attachment 2-D	**Mark-Up and Proposed Bases**

Attachment 2-A

Description and Assessment

Dominion
Surry Power Station Units 1 and 2

DESCRIPTION AND ASSESSMENT

1.0 INTRODUCTION

The proposed License amendment deletes Technical Specification (TS) 3.7 Instrumentation Systems, Specification F, which provides the TS requirements for the containment hydrogen analyzers and their associated support equipment. The proposed TS changes support implementation of the revisions to 10 CFR 50.44, "Standards for Combustible Gas Control System in Light-Water-Cooled Power Reactors," that became effective on October 16, 2003.

The changes are consistent with Revision 1 of NRC-approved Industry/Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF-447, "Elimination of Hydrogen Recombiners and Change to Hydrogen and Oxygen Monitors." The availability of this TS improvement was announced in the *Federal Register* on September 25, 2003 as part of the consolidated line item improvement process (CLIIP).

2.0 DESCRIPTION OF PROPOSED AMENDMENT

Consistent with the NRC-approved Revision 1 of TSTF-447, the proposed TS changes include:

TS 3.7	Specification F	Deleted
Table 4.1-2A	Item 21, Containment Hydrogen Analyzers	Deleted

As described in NRC-approved Revision 1 of TSTF-447, the changes to TS requirements also results in changes to the TS 3.7 Basis section. The associated Basis change is attached for information. The Surry TS basis will be updated in accordance with Dominion's Technical Specification change management procedure.

3.0 BACKGROUND

The background for this application is adequately addressed by the NRC Notice of Availability published on September 25, 2003 (68 FR 55416), TSTF-447, the documentation associated with the 10 CFR 50.44 rulemaking, and other related documents.

4.0 REGULATORY REQUIREMENTS AND GUIDANCE

The applicable regulatory requirements and guidance associated with this application are adequately addressed by the NRC Notice of Availability published on September 25, 2003 (68 FR 55416), TSTF-447, the documentation associated with the 10 CFR 50.44 rulemaking, and other related documents.

5.0 TECHNICAL ANALYSIS

Dominion has reviewed the Safety Evaluation (SE) published September 25, 2003 (68 FR 55416) as part of the CLIIP Notice of Availability. This verification included a review of the NRC staff's SE, as well as the supporting information provided to support TSTF-447. Dominion has concluded that the justifications presented in the TSTF proposal and the SE prepared by the NRC staff are applicable to Surry Power Station Units 1 and 2 and justify this amendment for the incorporation of the changes to the Surry TS.

6.0 REGULATORY ANALYSIS

A description of this proposed change and its relationship to applicable regulatory requirements and guidance was provided in the NRC Notice of Availability published on September 25, 2003 (68 FR 55416), TSTF-447, the documentation associated with the 10 CFR 50.44 rulemaking, and other related documents.

6.1 Verification and Commitments

As discussed in the model SE published in the *Federal Register* on September 25, 2003 (68 FR 55416) for this TS improvement, Dominion is making the following verifications and regulatory commitments:

1. Dominion has verified that a containment hydrogen analyzer system capable of diagnosing beyond design-basis accidents is installed at Surry Units 1 and 2 and is making a regulatory commitment to maintain that capability. The containment hydrogen analyzers will be included in the Surry Units 1 and 2 Technical Requirements Manual. This regulatory commitment will be implemented with the proposed amendment implementation.

2. Surry Units 1 and 2 do not have inerted containments.

3. The commitment made by this letter supersedes the previous commitments made in support of addressing NUREG-0737 requirements associated with Containment Hydrogen Analyzers.

7.0 NO SIGNIFICANT HAZARDS CONSIDERATION

Dominion has reviewed the proposed no significant hazards consideration determination published on September 25, 2003 (68 FR 55416) as part of the CLIIP. Dominion has concluded that the proposed determination presented in the notice is applicable to Surry Units 1 and 2 and the determination is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

8.0 ENVIRONMENTAL EVALUATION

Dominion has reviewed the environmental evaluation included in the model SE published on September 25, 2003 (68 FR 55416) as part of the CLIIP. Dominion has concluded that the staff's findings presented in that evaluation are applicable to Surry Units 1 and 2 and the evaluation is hereby incorporated by reference for this application.

9.0 PRECEDENT

This application is being made in accordance with the CLIIP. Dominion is proposing TS changes consistent with TSTF-447 and the NRC staff's model SE published on September 25, 2003 (68 FR 55416). Surry's TS are worded slightly differently than the TSTF Westinghouse Owners Group (WOG) example but the information intended to be deleted is the same.

10.0 REFERENCES

Federal Register Notice: Notice of Availability of Model Application Concerning Technical Specification Improvement To Eliminate Hydrogen Recombiner Requirement, and Relax the Hydrogen and Oxygen Monitor Requirements for Light Water Reactors Using the Consolidated Line Item Improvement Process, published September 25, 2003 (68 FR 55416).

Attachment 2-B

Mark-up of Technical Specifications

Dominion
Surry Power Station Units 1 and 2

2. With less than the minimum number of explosive gas monitoring instrumentation channels OPERABLE, take the action shown in Table 3.7-5(a). Exert best efforts to return the instruments to operable status within 30 days and, if unsuccessful, prepare and submit a Special Report to the Commission (Region II) to explain why the inoperability was not corrected in a timely manner.

E. The accident monitoring instrumentation listed in Table 3.7-6 shall be OPERABLE in accordance with the following:

1. With the number of OPERABLE accident monitoring instrumentation channels less than the Total Number of Channels shown in Table 3.7-6, items 1 through 9, either restore the inoperable channel(s) to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.

2. With the number of OPERABLE accident monitoring instrumentation channels less than the Minimum OPERABLE Channels requirement of Table 3.7-6, items 1 through 9, either restore the inoperable channel(s) to OPERABLE status within 48 hours or be in at least HOT SHUTDOWN within the next 12 hours.

F. The containment hydrogen analyzers and associated support equipment shall be OPERABLE in accordance with the following:

1. Two independent containment hydrogen analyzers shall be OPERABLE during REACTOR CRITICAL or POWER OPERATION.

a. With one hydrogen analyzer inoperable, restore the inoperable analyzer to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 6 hours.

delete

b. With both hydrogen ~~analyzers~~ inoperable, restore at least one analyzer ~~to~~ OPERABLE status within 7 days or be in at least HOT ~~SHUTDOWN~~ within the next 6 hours.

NOTE: ~~Operability~~ of the hydrogen analyzers includes proper ~~operation~~ of the respective Heat Tracing System.

deleted

Basis

Instrument Operating Conditions

During plant operations, the complete instrumentation system will normally be in service. Reactor safety is provided by the Reactor Protection System, which automatically initiates appropriate action to prevent exceeding established limits. Safety is not compromised, however, by continuing operation with certain instrumentation channels out of service since provisions were made for this in the plant design. This specification outlines the limiting conditions for operation necessary to preserve the effectiveness of the Reactor Protection System when any one or more of the channels is out of service.

Almost all Reactor Protection System channels are supplied with sufficient redundancy to provide the capability for channel calibration and test at power. Exceptions are backup channels such as reactor coolant pump breakers. The removal of one trip channel on process control equipment is accomplished by placing that channel bistable in a tripped mode (e.g., a two-out-of-three circuit becomes a one-out-of-two circuit). The Nuclear Instrumentation System (NIS) channels are not intentionally placed in a tripped mode since the test signal is superimposed on the normal detector signal to test at power. Testing of the NIS power range channel requires: (a) bypassing the dropped-rod protection from NIS, for the channel being tested, (b) placing the $\Delta T/T_{avg}$ protection channel set that is being fed from the NIS channel in the trip mode, and (c) defeating the power mismatch section of T_{avg} control channels when the appropriate NIS channel is being tested. However, the Rod Position System and remaining NIS channels still provide the dropped-rod protection. Testing does not trip the system unless a trip condition exists in a concurrent channel.

TABLE 4.1-2A(CONTINUED)
MINIMUM FREQUENCY FOR EQUIPMENT TESTS

	DESCRIPTION	TEST	FREQUENCY	UFSAR SECTION REFERENCE
19.	Primary Coolant System	Functional	1. Periodic leakage testing(a)(b) on each valve listed in Specification 3.1.C.7a shall be accomplished prior to entering POWER OPERATION after every time the plant is placed in COLD SHUTDOWN for refueling, after each time the plant is placed in COLD SHUTDOWN for 72 hours if testing has not been accomplished in the preceding 9 months, and prior to returning the valve to service after maintenance, repair or replacement work is performed.	
20.	Containment Purge MOV Leakage	Functional	Semi-Annual (Unit at power or shutdown) if purge valves are operated during interval(c)	
21.	~~Containment Hydrogen Analyzers~~ Deleted	~~a. CHANNEL FUNCTIONAL TEST~~ ~~b. CHANNEL CALIBRATION~~ ~~1. Sample gas used:~~ ~~One volume percent (±0.25%) hydrogen, balance nitrogen~~ ~~Four volume percent (±0.25%) hydrogen, balance nitrogen~~ ~~2. CHANNEL CALIBRATION will include startup and operation of the Heat Tracing System.~~	~~Once per 92 days~~ ~~Once per 18 months.~~	
22.	RCS Flow	Flow ≥ 273,000 gpm	Once per 18 months	14
23.	Deleted			

(a) To satisfy ALARA requirements, leakage may be measured indirectly (as from the performance of pressure indicators) if accomplished in accordance with approved procedures and supported by computations showing that the method is capable of demonstrating valve compliance with the leakage criteria.
(b) Minimum differential test pressure shall not be below 150 psid.
(c) Refer to Section 4.4 for acceptance criteria.
* See Specification 4.1.D.

Amendment Nos. ~~213 and 213~~

TS 4.1-9d
~~06-11-98~~

Attachment 2-C

Proposed Technical Specifications

Dominion
Surry Power Station Units 1 and 2

2. With less than the minimum number of explosive gas monitoring instrumentation channels OPERABLE, take the action shown in Table 3.7-5(a). Exert best efforts to return the instruments to operable status within 30 days and, if unsuccessful, prepare and submit a Special Report to the Commission (Region II) to explain why the inoperability was not corrected in a timely manner.

E. The accident monitoring instrumentation listed in Table 3.7-6 shall be OPERABLE in accordance with the following:

1. With the number of OPERABLE accident monitoring instrumentation channels less than the Total Number of Channels shown in Table 3.7-6, items 1 through 9, either restore the inoperable channel(s) to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.

2. With the number of OPERABLE accident monitoring instrumentation channels less than the Minimum OPERABLE Channels requirement of Table 3.7-6, items 1 through 9, either restore the inoperable channel(s) to OPERABLE status within 48 hours or be in at least HOT SHUTDOWN within the next 12 hours.

Basis

Instrument Operating Conditions

During plant operations, the complete instrumentation system will normally be in service. Reactor safety is provided by the Reactor Protection System, which automatically initiates appropriate action to prevent exceeding established limits. Safety is not compromised, however, by continuing operation with certain instrumentation channels out of service since provisions were made for this in the plant design. This specification outlines the limiting conditions for operation necessary to preserve the effectiveness of the Reactor Protection System when any one or more of the channels is out of service.

Almost all Reactor Protection System channels are supplied with sufficient redundancy to provide the capability for channel calibration and test at power. Exceptions are backup channels such as reactor coolant pump breakers. The removal of one trip channel on process control equipment is accomplished by placing that channel bistable in a tripped mode (e.g., a two-out-of-three circuit becomes a one-out-of-two circuit). The Nuclear Instrumentation System (NIS) channels are not intentionally placed in a tripped mode since the test signal is superimposed on the normal detector signal to test at power. Testing of the NIS power range channel requires: (a) bypassing the dropped-rod protection from NIS, for the channel being tested, (b) placing the $\Delta T/T_{avg}$ protection channel set that is being fed from the NIS channel in the trip mode, and (c) defeating the power mismatch section of T_{avg} control channels when the appropriate NIS channel is being tested. However, the Rod Position System and remaining NIS channels still provide the dropped-rod protection. Testing does not trip the system unless a trip condition exists in a concurrent channel.

TABLE 4.1-2A(CONTINUED)
MINIMUM FREQUENCY FOR EQUIPMENT TESTS

	DESCRIPTION	TEST	FREQUENCY	UFSAR SECTION REFERENCE
19.	Primary Coolant System	Functional	1. Periodic leakage testing(a)(b) on each valve listed in Specification 3.1.C.7a shall be accomplished prior to entering POWER OPERATION after every time the plant is placed in COLD SHUTDOWN for refueling, after each time the plant is placed in COLD SHUTDOWN for 72 hours if testing has not been accomplished in the preceding 9 months, and prior to returning the valve to service after maintenance, repair or replacement work is performed.	
20.	Containment Purge MOV Leakage	Functional	Semi-Annual (Unit at power or shutdown) if purge valves are operated during interval(c)	
21.	Deleted			
22.	RCS Flow	Flow ≥ 273,000 gpm	Once per 18 months	14
23.	Deleted			

(a) To satisfy ALARA requirements, leakage may be measured indirectly (as from the performance of pressure indicators) if accomplished in accordance with approved procedures and supported by computations showing that the method is capable of demonstrating valve compliance with the leakage criteria.
(b) Minimum differential test pressure shall not be below 150 psid.
(c) Refer to Section 4.4 for acceptance criteria.
* See Specification 4.1.D.

Amendment Nos.

Attachment 2-D

Mark-Up and Proposed Bases
(For Information Only)

Dominion
Surry Power Station Units 1 and 2

steam line pressure setting limit is set below the full load operating pressure. The safety analysis shows that these settings provide protection in the event of a large steam line break.[3]

Accident Monitoring Instrumentation

The operability of the accident monitoring instrumentation in Table 3.7-6 ensures that sufficient information is available on selected plant parameters to monitor and assess these variables during and following an accident. On the pressurizer PORVs, the pertinent channels consist of redundant limit switch indication. The pressurizer safety valves utilize an acoustic monitor channel and a downstream high temperature indication channel. This capability is consistent with the recommendations of Regulatory Guide 1.97, "Instrumentation for Light Water Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident," December 1975, and NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short Term Recommendations." Potential gaseous effluent release paths are equipped with radiation monitors to detect and measure concentrations of noble gas fission products in plant gaseous effluents during and following an accident. The gaseous effluent release paths monitored are the process vent stack, ventilation vent stack, main steam safety valve and atmospheric dump valve discharge and the AFW pump turbine exhaust. The potential liquid effluent release paths via the service water discharge from the recirculation spray heat exchangers are equipped with radiation monitors to detect leakage of recirculated containment sump fluid. These radiation monitors and the associated sample pumps are required to operate during the recirculation heat removal phase following a loss of coolant accident in order to detect a passive failure of a recirculation spray heat exchanger tube. These monitors meet the requirements of NUREG-0737.

Instrumentation is provided for monitoring (and controlling) the concentrations of potentially explosive gas mixtures in the Waste Gas Holdup System. The operability and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63 and 64 of Appendix A to 10 CFR Part 50.

~~Containment Hydrogen Analyzers~~

~~Indication of hydrogen concentration in the containment atmosphere can be provided in the control room over the range of zero to ten percent hydrogen concentration under accident conditions.~~

~~These redundant, qualified analyzers are shared by Units 1 and 2 with instrumentation to indicate and record the hydrogen concentration. Each~~

delete

hydrogen analyzer is designed with the capacity to obtain an accurate sample within 30 minutes after initiation of safety injection.

A transfer switch is provided for Unit 1 to use both analyzers or for Unit 2 to use both analyzers. In addition, each unit's hydrogen analyzer has a transferable emergency power supply from Unit 1 and Unit 2. This will ensure redundancy for each unit.

Indication of Unit 1 and Unit 2 hydrogen concentration is provided on the Unit 1 Post Accident Monitoring panel and the Unit 2 Post Accident Monitoring panel, respectively. Hydrogen concentration is also recorded on qualified recorders. In addition, each hydrogen analyzer is provided with an alarm for trouble/high hydrogen content. These alarms are located in the control room.

The supply lines installed from the containment penetrations to the hydrogen analyzers have Category I Class 1E heat tracing applied. The heat tracing system receives the same transferable emergency power as is provided to the containment hydrogen analyzers. The heat trace system is de-energized during normal system operation. Upon receipt of a SIS, after a preset time delay, heat tracing is energized to bring the piping process temperature to 250 ± 10°F. Each heat trace circuit is equipped with an RTD to provide individual circuit readout, over-temperature alarm, and control the circuit to maintain the process temperatures.

The hydrogen analyzer heat trace system is equipped with high temperature, loss of D.C. power, loss of A.C. power, loss of control power, and failure of automatic initiation alarms.

delete

Non-Essential Service Water Isolation System

The operability of this functional system ensures that adequate intake canal inventory can be maintained by the Emergency Service Water Pumps. Adequate intake canal inventory provides design service water flow to the recirculation spray heat exchangers and other essential loads (e.g., control room area chillers, charging pump lube oil coolers) following a design basis loss of coolant accident with a coincident loss of offsite power. This system is common to both units in that each of the two trains will actuate equipment on each unit.

steam line pressure setting limit is set below the full load operating pressure. The safety analysis shows that these settings provide protection in the event of a large steam line break.[3]

Accident Monitoring Instrumentation

The operability of the accident monitoring instrumentation in Table 3.7-6 ensures that sufficient information is available on selected plant parameters to monitor and assess these variables during and following an accident. On the pressurizer PORVs, the pertinent channels consist of redundant limit switch indication. The pressurizer safety valves utilize an acoustic monitor channel and a downstream high temperature indication channel. This capability is consistent with the recommendations of Regulatory Guide 1.97, "Instrumentation for Light Water Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident," December 1975, and NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short Term Recommendations." Potential gaseous effluent release paths are equipped with radiation monitors to detect and measure concentrations of noble gas fission products in plant gaseous effluents during and following an accident. The gaseous effluent release paths monitored are the process vent stack, ventilation vent stack, main steam safety valve and atmospheric dump valve discharge and the AFW pump turbine exhaust. The potential liquid effluent release paths via the service water discharge from the recirculation spray heat exchangers are equipped with radiation monitors to detect leakage of recirculated containment sump fluid. These radiation monitors and the associated sample pumps are required to operate during the recirculation heat removal phase following a loss of coolant accident in order to detect a passive failure of a recirculation spray heat exchanger tube. These monitors meet the requirements of NUREG-0737.

Instrumentation is provided for monitoring (and controlling) the concentrations of potentially explosive gas mixtures in the Waste Gas Holdup System. The operability and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63 and 64 of Appendix A to 10 CFR Part 50.

Non-Essential Service Water Isolation System

The operability of this functional system ensures that adequate intake canal inventory can be maintained by the Emergency Service Water Pumps. Adequate intake canal inventory provides design service water flow to the recirculation spray heat exchangers and other essential loads (e.g., control room area chillers, charging pump lube oil coolers) following a design basis loss of coolant accident with a coincident loss of offsite power. This system is common to both units in that each of the two trains will actuate equipment on each unit.

MILLSTONE POWER STATION
UNIT 2

Technical Specifications Change Request

Hydrogen Recombiners and Monitors

Attachment 3-A	**Description and Assessment**
Attachment 3-B	**Mark-Up of Technical Specifications**
Attachment 3-C	**Proposed Technical Specifications**
Attachment 3-D	**Mark-Up and Proposed Bases**

Attachment 3-A

Description and Assessment

DNC
Millstone Power Station Unit 2

DESCRIPTION AND ASSESSMENT

1.0 INTRODUCTION

The proposed License amendment deletes Technical Specification (TS) 3/4.6.4.1, "Combustible Gas Control, Hydrogen Monitors" and TS 3/4.6.4.2, "Electric Hydrogen Recombiners – W". The proposed TS changes support implementation of the revisions to 10 CFR 50.44, "Standards for Combustible Gas Control System in Light-Water-Cooled Power Reactors," that became effective on October 16, 2003. The deletion of the requirements for the hydrogen recombiners and hydrogen monitors resulted in numbering and formatting changes to other TS, which were otherwise unaffected by this proposed amendment.

The changes are consistent with Revision 1 of NRC-approved Industry/Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF-447, "Elimination of Hydrogen Recombiners and Change to Hydrogen and Oxygen Monitors." The availability of this TS improvement was announced in the *Federal Register* on September 25, 2003 as part of the consolidated line item improvement process (CLIIP).

2.0 DESCRIPTION OF PROPOSED AMENDMENT

Consistent with the NRC-approved Revision 1 of TSTF-447, the proposed TS changes include:

TS 3/4.6.4.1 Combustible Gas Control, Hydrogen Monitors	Deleted
TS 3/4.6.4.2 Combustible Gas Control, Electric Hydrogen Recombiners	Deleted

Other TS changes included in this application are limited to renumbering and formatting changes that resulted directly from the deletion of the above requirements related to hydrogen recombiners and hydrogen monitors.

As described in NRC-approved Revision 1 of TSTF-447, the changes to TS requirements and associated renumbering of other TSs results in changes to various TS Bases sections. The associated Bases changes are attached for your information. The TS Bases changes will be submitted with a future update in accordance with TS 6.23, "Technical Specifications (TS) Bases Control Program."

3.0 BACKGROUND

The background for this application is adequately addressed by the NRC Notice of Availability published on September 25, 2003 (68 FR 55416), TSTF-447, the documentation associated with the 10 CFR 50.44 rulemaking, and other related documents.

4.0 REGULATORY REQUIREMENTS AND GUIDANCE

The applicable regulatory requirements and guidance associated with this application are adequately addressed by the NRC Notice of Availability published on September 25, 2003 (68 FR 55416), TSTF-447, the documentation associated with the 10 CFR 50.44 rulemaking, and other related documents.

5.0 TECHNICAL ANALYSIS

Dominion Nuclear Connecticut, Inc. (DNC) has reviewed the safety evaluation (SE) published September 25, 2003 (68 FR 55416) as part of the CLIIP Notice of Availability. This verification included a review of the NRC staff's SE, as well as the supporting information provided to support TSTF-447. DNC has concluded that the justifications presented in the TSTF proposal and the SE prepared by the NRC staff are applicable to Millstone Unit 2 and justify this amendment for the incorporation of the changes to the Millstone Unit 2 TS.

6.0 REGULATORY ANALYSIS

A description of this proposed change and its relationship to applicable regulatory requirements and guidance was provided in the NRC Notice of Availability published on September 25, 2003 (68 FR 55416), TSTF-447, the documentation associated with the 10 CFR 50.44 rulemaking, and other related documents.

6.1 Verification and Commitments

As discussed in the model SE published in the *Federal Register* on September 25, 2003 (68 FR 55416) for this TS improvement, DNC is making the following verifications and regulatory commitments:

1. DNC has verified that a hydrogen monitoring system capable of diagnosing beyond design-basis accidents is installed at Millstone Unit 2 and is making a regulatory commitment to maintain that capability. The hydrogen monitors will be included in the Millstone Unit 2 Technical Requirements Manual. This regulatory commitment will be implemented with the proposed amendment implementation.

2. Millstone Unit 2 does not have an inerted containment.

3. The commitments made by this letter supersede the previous commitments made in support of addressing NUREG-0737 requirements associated with Hydrogen Monitors and Hydrogen Recombiners.

7.0 NO SIGNIFICANT HAZARDS CONSIDERATION

DNC has reviewed the proposed no significant hazards consideration determination published on September 25, 2003 (68 FR 55416) as part of the CLIIP. DNC has concluded that the proposed determination presented in the notice is applicable to Millstone Unit 2 and the determination is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

8.0 ENVIRONMENTAL EVALUATION

DNC has reviewed the environmental evaluation included in the model SE published on September 25, 2003 (68 FR 55416) as part of the CLIIP. DNC has concluded that the staff's findings presented in that evaluation are applicable to Millstone Unit 2 and the evaluation is hereby incorporated by reference for this application.

9.0 PRECEDENT

This application is being made in accordance with the CLIIP. DNC is proposing TS changes consistent with TSTF-447 and the NRC staff's model SE published on September 25, 2003 (68 FR 55416). Millstone's TS are worded slightly different than the TSTF example but the information intended to be deleted is the same.

10.0 REFERENCES

Federal Register Notice: Notice of Availability of Model Application Concerning Technical Specification Improvement To Eliminate Hydrogen Recombiner Requirement, and Relax the Hydrogen and Oxygen Monitor Requirements for Light Water Reactors Using the Consolidated Line Item Improvement Process, published September 25, 2003 (68 FR 55416).

Attachment 3-B

Mark-Up of Technical Specifications

DNC
Millstone Power Station Unit 2

July 25, 2003 e

LIMITING CONDITION FOR OPERATION AND SURVEILANCE REQUIREMENTS

(1) e

DELETED

September 28, 1987

CONTAINMENT SYSTEMS

3/4.6.4 COMBUSTIBLE GAS CONTROL

DELETED

HYDROGEN MONITORS

LIMITING CONDITION FOR OPERATION

3.6.4.1 Two independent containment hydrogen monitors shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTION:

a. With one hydrogen monitor inoperable, restore the inoperable monitor to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours.

b. With both hydrogen monitors inoperable, restore at least one monitor to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.6.4.1 Each hydrogen monitor shall be demonstrated OPERABLE by the performance of a CHANNEL FUNCTION TEST at least once per 31 days, and at least once per 92 days on a STAGGERED TEST BASIS by performing a CHANNEL CALIBRATION using sample gases containing:

a. One volume percent hydrogen, balance nitrogen.

b. Four volume percent hydrogen, balance nitrogen.

CONTAINMENT SYSTEMS

ELECTRIC HYDROGEN RECOMBINERS - W

LIMITING CONDITION FOR OPERATION

3.6.4.2 Two separate and independent containment hydrogen recombiner systems shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTION:

With one hydrogen recombiner system inoperable, restore the inoperable system to OPERABLE status within 30 days or be in HOT STANDBY within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.6.4.2 Each hydrogen recombiner system shall be demonstrated OPERABLE:

a. At least once per 6 months by verifying during a recombiner system functional test that the minimum heater sheath temperature increases to $\geq$ 700°F within 90 minutes and is maintained for at least 2 hours.

b. At least once per 18 months by:

1. Performing a CHANNEL CALIBRATION of all recombiner instrumentation and control circuits.

2. Verifying through a visual examination that there is no evidence of abnormal conditions within the recombiners (i.e., loose wiring or structural connections, deposits of foreign materials, etc.)

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CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

3. Verifying during a recombiner system functional test that the heater sheath temperature increases to ≥ 1200°F within 5 hours and is maintained for at least 4 hours.

4. Verifying the integrity of the heater electrical circuits by performing a continuity and resistance to ground test immediately following the above required functional test. The resistance to ground for any heater phase shall be ≥ 10,000 ohms.

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Attachment 3-C

Proposed Technical Specifications

DNC
Millstone Power Station Unit 2

INDEX

LIMITING CONDITION FOR OPERATION AND SURVEILLANCE REQUIREMENTS

3/4.6.4 COMBUSTIBLE GAS CONTROL

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Attachment 3-D

Mark-Up and Proposed Bases
(For Information Only)

DNC
Millstone Power Station Unit 2

3/4.6.4 COMBUSTIBLE GAS CONTROL

The OPERABILITY of the equipment and systems required for the detection and control of hydrogen gas ensures that this equipment will be available to maintain the hydrogen concentration within containment below its flammable limit during post-LOCA conditions. ~~Either recombiner unit is capable of controlling the expected hydrogen generation associated with 1) zirconium-water reactions, 2) radiolytic decomposition of water, and 3) corrosion of metals within containment. This hydrogen control system is consistent with the recommendations of Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a LOCA."~~ DELETED

The post-incident recirculation systems are provided to ensure adequate mixing of the containment atmosphere following a LOCA. This mixing action will prevent localized accumulations of hydrogen from exceeding the flammable limit.

3/4.6.4 COMBUSTIBLE GAS CONTROL

The OPERABILITY of the equipment and systems required for control of hydrogen gas ensures that this equipment will be available to maintain the hydrogen concentration within containment below its flammable limit during post-LOCA conditions.

The post-incident recirculation systems are provided to ensure adequate mixing of the containment atmosphere following a LOCA. This mixing action will prevent localized accumulations of hydrogen from exceeding the flammable limit.

MILLSTONE POWER STATION
UNIT 3

Technical Specifications Change Request

Hydrogen Recombiners and Monitors

Attachment 4-A	Description and Assessment
Attachment 4-B	Mark-Up of Technical Specifications
Attachment 4-C	Proposed Technical Specifications
Attachment 4-D	Mark-Up and Proposed Bases

Attachment 4-A

Description and Assessment

DNC
Millstone Power Station Unit 3

DESCRIPTION AND ASSESSMENT

1.0 INTRODUCTION

The proposed License amendment deletes Technical Specification (TS) 3/4.6.4.1, "Combustible Gas Control, Hydrogen Monitors", TS 3/4.6.4.2, "Electric Hydrogen Recombiners – W", references to the containment hydrogen monitors in TS 3.3.3.6.d and the containment hydrogen monitor surveillance requirement (SR) 4.3.3.6.2. The proposed TS changes support implementation of the revisions to 10 CFR 50.44, "Standards for Combustible Gas Control System in Light-Water-Cooled Power Reactors," that became effective on October 16, 2003. The deletion of the requirements for the hydrogen recombiners and hydrogen monitors resulted in numbering and formatting changes to other TS, which were otherwise unaffected by this proposed amendment.

The changes are consistent with Revision 1 of NRC-approved Industry/Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF-447, "Elimination of Hydrogen Recombiners and Change to Hydrogen and Oxygen Monitors." The availability of this TS improvement was announced in the *Federal Register* on September 25, 2003 as part of the consolidated line item improvement process (CLIIP).

2.0 DESCRIPTION OF PROPOSED AMENDMENT

Consistent with the NRC-approved Revision 1 of TSTF-447, the proposed TS changes include:

TS 3.3.3.6.d	Accident Monitoring Instrumentation, Hydrogen Monitors	Deleted
SR 4.3.3.6.2	Accident Monitoring Instrumentation, Hydrogen Monitors	Deleted
Table 3.3-10	Item 18, Containment Hydrogen Monitor	Deleted
Table 4.3-7	Item 18, Containment Hydrogen Monitor	Deleted
TS 3/4.6.4.1	Combustible Gas Control, Hydrogen Monitors	Deleted
TS 3/4.6.4.2	Combustible Gas Control, Electric Hydrogen Recombiners	Deleted

Other TS changes included in this application are limited to renumbering and formatting changes that resulted directly from the deletion of the above requirements related to hydrogen recombiners and hydrogen monitors.

As described in NRC-approved Revision 1 of TSTF-447, the changes to TS requirements and associated renumbering of other TSs results in changes to various TS Bases sections. The associated Bases changes are attached for your information. The TS Bases changes will be submitted with a future update in accordance with TS 6.18, "Technical Specifications (TS) Bases Control Program."

3.0 BACKGROUND

The background for this application is adequately addressed by the NRC Notice of Availability published on September 25, 2003 (68 FR 55416), TSTF-447, the documentation associated with the 10 CFR 50.44 rulemaking, and other related documents.

4.0 REGULATORY REQUIREMENTS AND GUIDANCE

The applicable regulatory requirements and guidance associated with this application are adequately addressed by the NRC Notice of Availability published on September 25, 2003 (68 FR 55416), TSTF-447, the documentation associated with the 10 CFR 50.44 rulemaking, and other related documents.

5.0 TECHNICAL ANALYSIS

Dominion Nuclear Connecticut, Inc. (DNC) has reviewed the safety evaluation (SE) published September 25, 2003 (68 FR 55416) as part of the CLIIP Notice of Availability. This verification included a review of the NRC staff's SE, as well as the supporting information provided to support TSTF-447. DNC has concluded that the justifications presented in the TSTF proposal and the SE prepared by the NRC staff are applicable to Millstone Unit 3 and justify this amendment for the incorporation of the changes to the Millstone Unit 3 TS.

6.0 REGULATORY ANALYSIS

A description of this proposed change and its relationship to applicable regulatory requirements and guidance was provided in the NRC Notice of Availability published on September 25, 2003 (68 FR 55416), TSTF-447, the documentation associated with the 10 CFR 50.44 rulemaking, and other related documents.

6.1 Verification and Commitments

As discussed in the model SE published in the *Federal Register* on September 25, 2003 (68 FR 55416) for this TS improvement, DNC is making the following verifications and regulatory commitments:

1. DNC has verified that a hydrogen monitoring system capable of diagnosing beyond design-basis accidents is installed at Millstone Unit 3 and is making a regulatory commitment to maintain that capability. The hydrogen monitors will be included in the Millstone Unit 3 Technical Requirements Manual. This regulatory commitment will be implemented with the proposed amendment implementation.

2. Millstone Unit 3 does not have an inerted containment.

3. The commitments made by this letter supersede the previous commitments made in support of addressing NUREG-0737 requirements associated with Hydrogen Monitors and Hydrogen Recombiners.

7.0 NO SIGNIFICANT HAZARDS CONSIDERATION

DNC has reviewed the proposed no significant hazards consideration determination published on September 25, 2003 (68 FR 55416) as part of the CLIIP. DNC has concluded that the proposed determination presented in the notice is applicable to Millstone Unit 3 and the determination is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

8.0 ENVIRONMENTAL EVALUATION

DNC has reviewed the environmental evaluation included in the model SE published on September 25, 2003 (68 FR 55416) as part of the CLIIP. DNC has concluded that the staff's findings presented in that evaluation are applicable to Millstone Unit 3 and the evaluation is hereby incorporated by reference for this application.

9.0 PRECEDENT

This application is being made in accordance with the CLIIP. DNC is proposing TS changes consistent with TSTF-447 and the NRC staff's model SE published on September 25, 2003 (68 FR 55416). Millstone's TS are worded slightly different than the TSTF example but the information intended to be deleted is the same.

10.0 REFERENCES

Federal Register Notice: Notice of Availability of Model Application Concerning Technical Specification Improvement To Eliminate Hydrogen Recombiner Requirement, and Relax the Hydrogen and Oxygen Monitor Requirements for Light Water Reactors Using the Consolidated Line Item Improvement Process, published September 25, 2003 (68 FR 55416).

Attachment 4-B

Mark-Up of Technical Specifications

DNC
Millstone Power Station Unit 3

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~~2/18/93~~ R

INSTRUMENTATION

ACCIDENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.6 The accident monitoring instrumentation channels shown in Table 3.3-10 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With the number of OPERABLE accident monitoring instrumentation channels except the containment area high range radiation monitor, ~~the containment hydrogen monitor,~~ and reactor vessel water level, less than the Total Number of Channels shown in Table 3.3-10, restore the inoperable channel(s) to OPERABLE status within 7 days, or be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours. 1

b. With the number of OPERABLE accident monitoring instrumentation channels except the containment area-high range radiation monitor, ~~the containment hydrogen monitor,~~ and reactor vessel water level less than the Minimum Channels OPERABLE requirements of Table 3.3-10, restore the inoperable channel(s) to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours. 1

c. With the number of OPERABLE channels for the containment area-high range radiation monitor less than required by either the total or the Minimum Channels OPERABLE requirements, initiate an alternate method of monitoring the appropriate parameter(s), within 72 hours, and either restore the inoperable channel(s) to OPERABLE status within 7 days or prepare and submit a Special Report to the Commission, pursuant to Specification 6.9.2, within 14 days that provides actions taken, cause of the inoperability, and the plans and schedule for restoring the channels to OPERABLE status.

Deleted

d. ~~With the number of OPERABLE channels for the containment hydrogen monitors less than the total number of channels shown in Table 3.3-10, restore the inoperable channel to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours. With the number of operable channels for the containment hydrogen monitors less than the minimum channels OPERABLE requirement of Table 3.3-10, restore the inoperable channel(s) to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours.~~ 1

e. With the number of OPERABLE channels for the reactor vessel water level monitor less than the Total number of Channels shown in Table 3.3-10, either restore the inoperable channel to OPERABLE status within 7 days if repairs are feasible without shutting down or prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days following the event outlining the

~~6/24/97~~

LIMITING CONDITION FOR OPERATION (Continued)

action taken, the cause of the inoperability, and the plans and schedule for restoring the channel to OPERABLE status.

f. With the number of OPERABLE channels for the reactor vessel water level monitor less than the minimum channels OPERABLE requirements of Table 3.3-10, either restore the inoperable channel(s) to OPERABLE status within 48 hours if repairs are feasible without shutting down or:

1. Initiate an alternate method of monitoring the reactor vessel inventory;

2. Prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days following the event outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the channel(s) to OPERABLE status; and

3. Restore the channel(s) to OPERABLE status at the next scheduled refueling.

g. Entry into an OPERATIONAL MODE is permitted while subject to these ACTION requirements.

SURVEILLANCE REQUIREMENTS

4.3.3.6.1 Each accident monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION at the frequencies shown in Table 4.3-7.

~~4.3.3.6.2 Each hydrogen monitor shall also be demonstrated OPERABLE by a Hydrogen Sensor Calibration and an ANALOG CHANNEL OPERATIONAL TEST at least once per 92 days on a STAGGERED TEST BASIS.~~

4.3.3.6.2 Deleted

TABLE 3.3-10 (Continued)

ACCIDENT MONITORING INSTRUMENTATION

INSTRUMENT	TOTAL NO. OF CHANNELS	MINIMUM CHANNELS OPERABLE
16. Containment Area - High Range Radiation Monitor	2	1
17. Reactor Vessel Water Level	2*	1*
18. ~~Containment Hydrogen Monitor~~ (Deleted)	~~2~~	~~1~~
19. Neutron Flux	2	1

*A channel consists of eight sensors in a probe. A channel is operable if four or more sensors, half or more in the upper head region and half or more in the upper plenum region, are operable.

2/18/99

TABLE 4.3-7 (Continued)

ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT		CHANNEL CHECK	CHANNEL CALIBRATION
16.	Containment Area - High Range Radiation Monitor	M	R*
17.	Reactor Vessel Water Level	M	R**
18.	~~Containment Hydrogen Monitor~~ (Deleted)	~~S~~	~~R~~
19.	Neutron Flux	M	R

(1)

* CHANNEL CALIBRATION may consist of an electronic calibration of the channel, not including the detector, for range decades above 10 R/h and a one point calibration check of the detector below 10 R/h with an installed or portable gamma source.

** Electronic calibration from the ICC cabinets only.

Amendment No. 78, 79, 100, 442

6/24/98

CONTAINMENT SYSTEMS

3/4.6.4 COMBUSTIBLE GAS CONTROL

HYDROGEN MONITORS

LIMITING CONDITION FOR OPERATION

3.6.4.1 Two independent containment hydrogen monitors shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one hydrogen monitor inoperable, restore the inoperable monitor to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours.

b. With both hydrogen monitors inoperable, restore at least one monitor to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours.

c. Entry into an OPERATIONAL MODE is permitted while subject to these ACTION requirements.

SURVEILLANCE REQUIREMENTS

4.6.4.1 Each hydrogen monitor shall be demonstrated OPERABLE:

a. By the performance of a CHANNEL CHECK at least once per 12 hours, and

b. By the performance of a Hydrogen Sensor Calibration and an ANALOG CHANNEL OPERATIONAL TEST at least once per 92 days on a STAGGERED TEST BASIS, and

c. By the performance of a CHANNEL CALIBRATION at least once each REFUELING INTERVAL.

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~~July 24, 2002~~

ELECTRIC HYDROGEN RECOMBINERS

LIMITING CONDITION FOR OPERATION

3.6.4.2 Two independent Hydrogen Recombiner Systems shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTION:

With one Hydrogen Recombiner System inoperable, restore the inoperable system to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.6.4.2 Each Hydrogen Recombiner System shall be demonstrated OPERABLE at least once per 24 months by:

a. Deleted

b. Performing a CHANNEL CALIBRATION of all recombiner instrumentation and control circuits,

c. Verifying through a visual examination that there is no evidence of abnormal conditions within the recombiner enclosure (i.e., loose wiring or structural connections, deposits of foreign materials, etc.),

d. Verifying the integrity of all heater electrical circuits by performing a resistance to ground test following the above required functional test. The resistance to ground for any heater phase shall be greater than 10,000 ohms, and

e. Verifying during a recombiner system functional test using containment atmospheric air at an acceptable flow rate as determined in Section 4.6.4.2.f that the gas temperature increases to greater than or equal to 1100°F within 5 hours and is maintained for at least 4 hours.

f. Verifying during a recombiner system functional test using containment atmospheric air that the blower would be capable of delivering at least 41.52 scfm at containment conditions of 12.47 psia and 130°F.

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Attachment 4-C

Proposed Technical Specifications

DNC
Millstone Power Station Unit 3

INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

INSTRUMENTATION

ACCIDENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.6 The accident monitoring instrumentation channels shown in Table 3.3-10 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With the number of OPERABLE accident monitoring instrumentation channels except the containment area high range radiation monitor, and reactor vessel water level, less than the Total Number of Channels shown in Table 3.3-10, restore the inoperable channel(s) to OPERABLE status within 7 days, or be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours.

b. With the number of OPERABLE accident monitoring instrumentation channels except the containment area-high range radiation monitor, and reactor vessel water level less than the Minimum Channels OPERABLE requirements of Table 3.3-10, restore the inoperable channel(s) to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours.

c. With the number of OPERABLE channels for the containment area-high range radiation monitor less than required by either the total or the Minimum Channels OPERABLE requirements, initiate an alternate method of monitoring the appropriate parameter(s), within 72 hours, and either restore the inoperable channel(s) to OPERABLE status within 7 days or prepare and submit a Special Report to the Commission, pursuant to Specification 6.9.2, within 14 days that provides actions taken, cause of the inoperability, and the plans and schedule for restoring the channels to OPERABLE status.

d. Deleted

e. With the number of OPERABLE channels for the reactor vessel water level monitor less than the Total number of Channels shown in Table 3.3-10, either restore the inoperable channel to OPERABLE status within 7 days if repairs are feasible without shutting down or prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days following the event outlining the

action taken, the cause of the inoperability, and the plans and schedule for restoring the channel to OPERABLE status.

f. With the number of OPERABLE channels for the reactor vessel water level monitor less than the minimum channels OPERABLE requirements of Table 3.3-10, either restore the inoperable channel(s) to OPERABLE status within 48 hours if repairs are feasible without shutting down or:

1. Initiate an alternate method of monitoring the reactor vessel inventory;

2. Prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days following the event outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the channel(s) to OPERABLE status; and

3. Restore the channel(s) to OPERABLE status at the next scheduled refueling.

g. Entry into an OPERATIONAL MODE is permitted while subject to these ACTION requirements.

SURVEILLANCE REQUIREMENTS

4.3.3.6.1 Each accident monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION at the frequencies shown in Table 4.3-7.

4.3.3.6.2 Deleted

TABLE 3.3-10 (Continued)
ACCIDENT MONITORING INSTRUMENTATION

INSTRUMENT		TOTAL NO. OF CHANNELS	MINIMUM CHANNELS OPERABLE
16.	Containment Area - High Range Radiation Monitor	2	1
17.	Reactor Vessel Water Level	2*	1*
18.	Deleted		
19.	Neutron Flux	2	1

* A channel consists of eight sensors in a probe. A channel is operable if four or more sensors, half or more in the upper head region and half or more in the upper plenum region, are operable.

TABLE 4.3-7 (Continued)
ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT		CHANNEL CHECK	CHANNEL CALIBRATION
16.	Containment Area - High Range Radiation Monitor	M	R*
17.	Reactor Vessel Water Level	M	R**
18.	Deleted		
19.	Neutron Flux	M	R

* CHANNEL CALIBRATION may consist of an electronic calibration of the channel, not including the detector, for range decades above 10 R/h and a one point calibration check of the detector below 10 R/h with an installed or portable gamma source.

** Electronic calibration from the ICC cabinets only.

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Attachment 4-D

Mark-Up and Proposed Bases
(For Information Only)

DNC
Millstone Power Station Unit 3

BASES

3/4.3.3.6 ACCIDENT MONITORING INSTRUMENTATION (Continued)

A channel is operable if four or more sensors, half or more in the upper head region and half or more in the upper plenum region, are OPERABLE.

In the event more than four sensors in a Reactor Vessel Level channel are inoperable, repairs may only be possible during the next refueling outage. This is because the sensors are accessible only after the missile shield and reactor vessel head are removed. It is not feasible to repair a channel except during a refueling outage when the missile shield and reactor vessel head are removed to refuel the core. If only one channel is inoperable, it should be restored to OPERABLE status in a refueling outage as soon as reasonably possible. If both channels are inoperable, at least one channel shall be restored to OPERABLE status in the nearest refueling outage.

The Reactor Coolant System Subcooling Margin Monitor, Core Exit Thermocouples, and Reactor Vessel Water Level instruments are processed by two separate trains of ICC (Inadequate Core Cooling) and HJTC (Heated Junction ThermoCouple) processors. The preferred indication for these parameters is the Safety Parameter Display System (SPDS) via the non-qualified PPC (Plant Process Computer) but qualified indication is provided in the instrument rack room. When the PPC data links cease to transmit data, the processors must be reset in order to restore the flow of data to the PPC. During reset, the qualified indication in the instrument rack room is lost. These instruments are OPERABLE during this reset since the indication is only briefly interrupted while the processors reset and the indication is promptly restored. The sensors are not removed from service during this reset. The train should be considered inoperable only if the qualified indication fails to be restored following reset. Except for the non-qualified PPC display, the instruments operate as required.

~~Hydrogen Monitors are provided to detect high hydrogen concentration conditions that represent a potential for containment breach from a hydrogen explosion. Containment hydrogen concentration is also important in verifying the adequacy of mitigating actions. The requirement to perform a hydrogen sensor calibration at least once every 92 days is based upon vendor recommendations to maintain sensor calibration. This calibration consists of a two point calibration, utilizing gas containing approximately one percent hydrogen gas for one of the calibration points, and gas containing approximately four percent hydrogen gas for the other calibration point.~~

3/4.3.3.7 Deleted.

3/4.3.3.8 DELETED

3/4.3.3.9 DELETED

3/4.3.3.10 DELETED

3/4.3.4 DELETED

For the purposes of meeting this LCO, neither the containment isolation valve, nor any alternate valve on a closed system have a leakage limit associated with valve operability.

The opening of containment isolation valves on an intermittent basis under administrative controls includes the following considerations: (1) stationing an operator, who is in constant communication with the control room, at the valve controls, (2) instructing this operator to close these valves in an accident situation, and (3) asuring that environmental conditions will not preclude access to close the valves and that this action will prevent the release of radioactivity outside the containment.

The appropriate administrative controls, based on the above considerations, to allow containment isolation valves to be opened are contained in the procedures that will be used to operate the valves. Entries should be placed in the Shift Manager Log when these valves are opened or closed. However, it is not necessary to log into any Technical Specification Action Statement for these valves, provided the appropriate administrative controls have been established.

Opening a closed containment isolation valve bypasses a plant design feature that prevents the release of radioactivity outside the containment. Therefore, this should not be done frequently, and the time the valve is opened should be minimized. The determination of the appropriate administrative controls for containment isolation valves requires an evaluation of the expected environmental conditions. This evaluation must conclude environmental conditions will not preclude access to close the valve, and this action will prevent the release of radioactivity outside of containment through the respective penetration.

When the Residual Heat Removal (RHR) System is placed in service in the plant cooldown mode of operation, the RHR suction isolation remotely operated valves 3RHS*MV8701A and 3RHS*MV8701B, and/or 3RHS*MV8702A and 3RHS*MV8702B are opened. These valves are normally operated from the control room. They do not receive an automatic containment isolation closure signal, but are interlocked to prevent their opening if Reactor Coolant System (RCS) pressure is greater than approximately 412.5 psia. When any of these valves are opened, either one of the two required licensed (Reactor Operator) control room operators can be credited as the operator required for administrative control. It is not necessary to use a separate dedicated operator.

~~3/4.6.4 COMBUSTIBLE GAS CONTROL~~

~~Hydrogen Monitors are provided to detect high hydrogen concentration conditions that represent a potential for containment breach from a hydrogen explosion. Containment hydrogen concentration is also important in verifying the adequacy of mitigating actions. The requirement to perform a hydrogen sensor calibration at least every 92 days is based upon vendor recommendations to maintain sensor calibration. This calibration consists of a two point calibration, utilizing gas containing approximately one percent hydrogen gas for one of the calibration points, and gas containing approximately four percent hydrogen gas for the other calibration point.~~

3/4.6.4 COMBUSTIBLE GAS CONTROL (Continued)

The OPERABILITY of the equipment and systems required for the detection and control of hydrogen gas ensures that this equipment will be available to maintain the hydrogen concentration within containment below its flammable limit during post-LOCA conditions. Either recombiner unit or the Mechanical Vacuum Pumps are capable of controlling the expected hydrogen generation associated with: (1) zirconium-water reactions, (2) radiolytic decomposition of water, and (3) corrosion of metals within containment. These Hydrogen Control Systems are consistent with the recommendations of Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a LOCA," March 1971.

The Post-LOCA performance of the hydrogen recombiner blowers is based on a series of equations supplied by the blower manufacturer. These equations are also the basis of the acceptance criteria used in the surveillance procedure. The required performance was based on starting containment conditions before the LOCA of 10.59 psia (total pressure), 120°F and 100% relative humidly.

The surveillance procedure shall use the following methods to verify acceptable blower flow rate:

1. Definitions and constants

   CFM = cubic feet per minute

   RPM = revolutions per minute

   Blower RPM = 3550

   Blower ft^3/revolution =.028 ft^3

   Standard CFM = gas volume converted to conditions of 68°F and 14.7 psia.

2. Measure and record the following information:

   Pcontainment--Average of 3LMS*P934, 935, 936, and 937 (psia)

   Pout--From 3HCS*PI1A or B (psia)

   Tc--Containment temperature (°F)

   Pin--Measure with a new inlet gauge or calculate from Equation 3a below (psia)

   scfm measured--See Procedure/Form 3613A.3-1

   ΔP_f--From Table 2 (psi)

   A--As found Slip Constant

   Accuracy--Instrument accuracy range from Table 1.

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3/4.6.4 COMBUSTIBLE GAS CONTROL (Continued)

3. Calculate as found slip constant (A)

   a. Pin = Pcontainment - ΔP_f

   b.

$$A = \frac{3550 - \left(\left[\frac{scfm_{measured} - Accuracy}{0.028 \times 0.95}\right] \times \left[\frac{14.7}{Pin} \times \frac{Tc + 460}{528}\right]\right)}{\left(\left[\frac{Pout}{Pin} \times 14.7\right] - 14.7\right)^{1/2} \times \left(\frac{14.7}{Pin} \times \frac{Tc + 460}{528}\right)^{1/2}}$$

4. Calculate expected postaccident flow rate using A calculated in Step 3.

   a. Slip RPM

   $= A \times (4.937)^{1/2} \times 1.218$

   b. Actual Inlet CFM

   ACFM = .028 (3550 - Slip RPM)

   c. Standard CFM

   scfm = ACFM 0.725

   d. Postaccident scfm Minimum = scfm × 0.95

   e. Acceptance Flow Rate

   Postaccident scfm minimum ≥ 41.52 scfm.

Table 1 Accuracy Range (Ref. 2)

scfm (measured)	Accuracy Range
30 to < 40	9.13 scfm
40 to < 50	6.98 scfm
50 to < 60	5.81 scfm
60 to < 90	5.17 scfm

Table 2 Inlet Piping Loss (Ref. 1)

scfm Measured (Unadjusted)	ΔP_f (psi)
30	.21
40	.31
50	.52
60	.73
70	.98
80	1.28

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3/4.6.4 COMBUSTIBLE GAS CONTROL (Continued)

References: 1. Calculation 90-RPS-722GM, "Flow Acceptance Criteria for 3HCS*RBNR 1A/B Blowers 3HCS*C1A/B."

2. Calculation PA 90-LOE-0132GE, "Hydrogen Recombiner Flow Error Analysis."

The acceptance flow rate is the required flow rate at the worst case containment conditions 24 hours after the LOCA. The analysis assumes the recombiners are started no later than 24 hours after the accident. The 18-month surveillance shall verify the gas temperature and blower flow rate concurrently.

3/4.6.5 SUBATMOSPHERIC PRESSURE CONTROL SYSTEM

3/4.6.5.1 STEAM JET AIR EJECTOR

The closure of the isolation valves in the suction of the steam jet air ejector ensures that: (1) the containment internal pressure may be maintained within its operation limits by the mechanical vacuum pumps, and (2) the containment atmosphere is isolated from the outside environment in the event of a LOCA. These valves are required to be closed for containment isolation.

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BASES

3/4.3.3.6 ACCIDENT MONITORING INSTRUMENTATION (Continued)

A channel is operable if four or more sensors, half or more in the upper head region and half or more in the upper plenum region, are OPERABLE.

In the event more than four sensors in a Reactor Vessel Level channel are inoperable, repairs may only be possible during the next refueling outage. This is because the sensors are accessible only after the missile shield and reactor vessel head are removed. It is not feasible to repair a channel except during a refueling outage when the missile shield and reactor vessel head are removed to refuel the core. If only one channel is inoperable, it should be restored to OPERABLE status in a refueling outage as soon as reasonably possible. If both channels are inoperable, at least one channel shall be restored to OPERABLE status in the nearest refueling outage.

The Reactor Coolant System Subcooling Margin Monitor, Core Exit Thermocouples, and Reactor Vessel Water Level instruments are processed by two separate trains of ICC (Inadequate Core Cooling) and HJTC (Heated Junction ThermoCouple) processors. The preferred indication for these parameters is the Safety Parameter Display System (SPDS) via the non-qualified PPC (Plant Process Computer) but qualified indication is provided in the instrument rack room. When the PPC data links cease to transmit data, the processors must be reset in order to restore the flow of data to the PPC. During reset, the qualified indication in the instrument rack room is lost. These instruments are OPERABLE during this reset since the indication is only briefly interrupted while the processors reset and the indication is promptly restored. The sensors are not removed from service during this reset. The train should be considered inoperable only if the qualified indication fails to be restored following reset. Except for the non-qualified PPC display, the instruments operate as required.

3/4.3.3.7 Deleted.

3/4.3.3.8 DELETED

3/4.3.3.9 DELETED

3/4.3.3.10 DELETED

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For the purposes of meeting this LCO, neither the containment isolation valve, nor any alternate valve on a closed system have a leakage limit associated with valve operability.

The opening of containment isolation valves on an intermittent basis under administrative controls includes the following considerations: (1) stationing an operator, who is in constant communication with the control room, at the valve controls, (2) instructing this operator to close these valves in an accident situation, and (3) asuring that environmental conditions will not preclude access to close the valves and that this action will prevent the release of radioactivity outside the containment.

The appropriate administrative controls, based on the above considerations, to allow containment isolation valves to be opened are contained in the procedures that will be used to operate the valves. Entries should be placed in the Shift Manager Log when these valves are opened or closed. However, it is not necessary to log into any Technical Specification Action Statement for these valves, provided the appropriate administrative controls have been established.

Opening a closed containment isolation valve bypasses a plant design feature that prevents the release of radioactivity outside the containment. Therefore, this should not be done frequently, and the time the valve is opened should be minimized. The determination of the appropriate administrative controls for containment isolation valves requires an evaluation of the expected environmental conditions. This evaluation must conclude environmental conditions will not preclude access to close the valve, and this action will prevent the release of radioactivity outside of containment through the respective penetration.

When the Residual Heat Removal (RHR) System is placed in service in the plant cooldown mode of operation, the RHR suction isolation remotely operated valves 3RHS*MV8701A and 3RHS*MV8701B, and/or 3RHS*MV8702A and 3RHS*MV8702B are opened. These valves are normally operated from the control room. They do not receive an automatic containment isolation closure signal, but are interlocked to prevent their opening if Reactor Coolant System (RCS) pressure is greater than approximately 412.5 psia. When any of these valves are opened, either one of the two required licensed (Reactor Operator) control room operators can be credited as the operator required for administrative control. It is not necessary to use a separate dedicated operator.

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